IN THE CLAIMS

Please amend claims 1, 13-14, 16, 22, 25, 27-29, 31-32, 34, 36-41, and 43-52 as follows below.

Please cancel claims 2-3, 17, 19, 21, 26, 35, 42, and 58-72 without prejudice.

Please add new claims 73-80 as follow below.

This listing of claims will replace all prior versions, and listings, of claims in the application:

MARKED UP VERSION OF CLAIMS

1. (Currently Amended) A method of processing for a semiconductor device, the method comprising:

providing a wafer including a substrate;

forming a plurality of sidewalls around a plurality of cylindrical pedestals above a surface of the substrate;

removing the plurality of cylindrical pedestals; and

vertically etching horizontal surfaces of a first material located around the plurality of sidewalls, wherein the plurality of sidewalls provide an etch stop and protect the first material under the plurality of sidewalls from being etched during the vertical etching of the first material.

2. (Cancelled)

3. (Cancelled)

4. (Original) The method of claim 1, further comprising:

removing the plurality of sidewalls.

5. (Original) The method of claim 1, further comprising:
diffusing a dopant into the first material located around the plurality of sidewalls.

6. (Original) The method of claim 1, further comprising:
diffusing a dopant into a second material around the plurality of sidewalls.

7. (Original) The method of claim 1, further comprising:
diffusing a dopant into the first material and a second material around the plurality of sidewalls.

8. (Original) The method of claim 1, further comprising:
diffusing a dopant into the first material or a second material around the plurality of sidewalls.

9. (Original) The method of claim 8, wherein,
the plurality of sidewalls provide an etch stop and a diffusion barrier.

10. (Original) The method of claim 9, wherein,
the plurality of sidewalls protect the first material under the plurality of sidewalls from receiving a dopant during the diffusing of the dopant into the first material or the second material.

11. (Original) The method of claim 9, wherein,

the plurality of sidewalls protect the second material under the plurality of sidewalls from receiving a dopant during the diffusing of the dopant into the first material and the second material.

12. (Original) The method of claim 9, wherein,

the plurality of sidewalls protect the first material and the second material under the plurality of sidewalls from receiving a dopant during the diffusing of the dopant into the first material or the second material.

13. (Withdrawn-Currently Amended) A method of processing for a semiconductor device, the method comprising:

providing a wafer including a substrate;

forming a plurality of sidewalls around a plurality of cylindrical pedestals above a surface of the substrate;

removing the plurality of cylindrical pedestals;

vertically etching horizontal surfaces of a first material located around the plurality of sidewalls, wherein the plurality of sidewalls provide an etch stop and protect the first material under the plurality of sidewalls from being etched during the vertical etching of the first material; and

diffusing a dopant into the [[a]] first material located around the plurality of sidewalls.

14. (Withdrawn-Currently Amended) The method of claim 13, wherein,

the plurality of sidewalls further provide a diffusion barrier.

15. (Withdrawn) The method of claim 14, wherein,
the plurality of sidewalls protect the first material under the plurality of sidewalls from receiving a dopant during the diffusing of the dopant into the first material.

16. (Withdrawn-Currently Amended) The method of claim 13, further comprising:
removing at least one of the plurality of sidewalls.

17. (Withdrawn-Cancelled)

18. (Withdrawn) The method of claim 13, further comprising:
vertically etching horizontal surfaces of a second material located around the plurality of sidewalls.

19. (Withdrawn-Cancelled)

20. (Withdrawn) The method of claim 13, further comprising:
vertically etching horizontal surfaces of the substrate located around the plurality of sidewalls.

21. (Withdrawn-Cancelled)

22. (Withdrawn-Currently Amended) The method of claim [[21]] 18, wherein,
the plurality of sidewalls further provide a diffusion barrier ~~and an etch stop~~.

23. (Withdrawn) The method of claim 22, wherein,

the plurality of sidewalls protect the first material under the plurality of sidewalls from being etched during the etching of the first material.

24. (Withdrawn) The method of claim 22, wherein,

the plurality of sidewalls protect the second material under the plurality of sidewalls from being etched during the etching of the second material.

25. (Withdrawn-Currently Amended) The method of claim [[22]] 18, wherein,

the plurality of sidewalls protect the first material and the second material under the plurality of sidewalls from being etched during the vertical etching of the first material and the second material.

26. (Withdrawn-Cancelled)

27. (Withdrawn-Currently Amended) A method of processing for a semiconductor device, the method comprising:

providing a wafer including a substrate of the semiconductor device;

forming a plurality of sidewalls around a plurality of cylindrical pedestals above a surface of the substrate;

removing the plurality of cylindrical pedestals;

vertically etching horizontal surfaces of a first material located around the plurality of sidewalls, wherein the plurality of sidewalls provide an etch stop and protect

the first material under the plurality of sidewalls from being etched during the vertical etching of the first material; and

diffusing a dopant around the plurality of sidewalls.

28. (Withdrawn-Currently Amended) The method of claim 27, wherein,

the plurality of sidewalls are formed by

forming [[a]] the plurality of cylindrical pedestals above [[a]] the surface of the substrate,

depositing a sidewall material layer over the cylindrical pedestals and the substrate,

vertically etching the horizontal surfaces of the sidewall material,

and

the plurality of cylindrical pedestals are removed by etching away the plurality of cylindrical pedestals.

29. (Withdrawn-Currently Amended) The method of claim 27, wherein,

the vertical etching of horizontal surfaces of the first material located around the plurality of sidewalls is performed using a substantially anisotropic etchant.

30. (Withdrawn) The method of claim 27, wherein,

the plurality of sidewalls provide an etch stop and a diffusion barrier.

31. (Withdrawn-Currently Amended) The method of claim 30, wherein,

the plurality of sidewalls protect the first material under the plurality of sidewalls from being etched during the etching of the first material around the plurality of sidewalls and the plurality of sidewalls protect the first material under the plurality of sidewalls from receiving the dopant during the diffusing of the dopant around the plurality of sidewalls.

32. (Withdrawn-Currently Amended) A method of processing for a semiconductor device, the method comprising:

providing a wafer including a substrate of the semiconductor device, the semiconductor device being a transistor or a diode;

forming a plurality of sidewalls around a plurality of cylindrical pedestals above a surface of the substrate;

removing the plurality of cylindrical pedestals;

vertically etching horizontal surfaces of a first material located around the plurality of sidewalls, wherein the plurality of sidewalls provide an etch stop and protect the first material under the plurality of sidewalls from being etched during the vertical etching of the first material; and

diffusing a dopant around the plurality of sidewalls.

33. (Withdrawn) The method of claim 32, wherein,

the plurality of sidewalls provide a diffusion barrier.

34. (Withdrawn-Currently Amended) The method of claim 32, wherein,

the plurality of sidewalls are formed by

forming [[a]] the plurality of cylindrical pedestals above [[a]] the surface of the substrate,

depositing a sidewall material layer over the cylindrical pedestals and the substrate,

vertically etching the horizontal surfaces of the sidewall material,

and

the plurality of cylindrical pedestals are removed by etching away the plurality of cylindrical pedestals.

35. (Withdrawn-Cancelled)

36. (Withdrawn-Currently Amended) The method of claim [[35]] 32, wherein,

the plurality of sidewalls provide an etch stop and a diffusion barrier.

37. (Withdrawn-Currently Amended) The method of claim [[35]] 32, wherein,

the vertical etching of horizontal surfaces of the first material located around the plurality of sidewalls is performed using a substantially anisotropic etchant.

38. (Withdrawn-Currently Amended) The method of claim 36, wherein,

the plurality of sidewalls protect the first material under the plurality of sidewalls from being etched during the vertical etching of horizontal surfaces of the first material around the plurality of sidewalls and the

plurality of sidewalls protect the first material under the plurality of sidewalls from receiving the dopant during the diffusing of the dopant around the plurality of sidewalls.

39. (Withdrawn-Currently Amended) The method of claim 35, wherein,

the first material located around the plurality of sidewalls which is vertically etched is the substrate.

40. (Withdrawn-Currently Amended) The method of claim 35, wherein,

the first material located around the plurality of sidewalls which is vertically etched is a layer exposed over a surface of the substrate and protected under the plurality of sidewalls.

41. (Withdrawn-Currently Amended) A method of processing for a semiconductor device, the method comprising:

providing a wafer including a substrate of the semiconductor device, the semiconductor device being a transistor or a diode;

forming a plurality of sidewalls around a plurality of cylindrical pedestals above a surface of the substrate;

removing the plurality of cylindrical pedestals; and

vertically etching horizontal surfaces of a first material located around the plurality of sidewalls, wherein the plurality of sidewalls provide an etch stop and protect the first material under the plurality of sidewalls from being etched during the vertical etching of the first material.

42. (Withdrawn-Cancelled)

43. (Withdrawn-Currently Amended) The method of claim 41, wherein,

the first material located around the plurality of sidewalls which is horizontally etched is the substrate.

44. (Withdrawn-Currently Amended) The method of claim 41, wherein,

the first material located around the plurality of sidewalls which is horizontally etched is an epitaxial layer of the substrate.

45. (Withdrawn-Currently Amended) The method of claim 41, wherein,

the first material located around the plurality of sidewalls which is horizontally etched is a layer exposed over a surface of the substrate and protected under the plurality of sidewalls.

46. (Withdrawn-Currently Amended) The method of claim 41, wherein,

the vertical etching of horizontal surfaces of the first material located around the plurality of sidewalls is performed using a substantially anisotropic etchant.

47. (Withdrawn-Currently Amended) The method of claim 41, wherein,

the plurality of sidewalls are formed by

forming [[a]] the plurality of cylindrical pedestals above [[a]] the surface of the substrate,

depositing a sidewall material layer over the cylindrical pedestals and the substrate,

vertically etching the horizontal surfaces of the sidewall material,

and

the plurality of cylindrical pedestals are removed by etching away the plurality of cylindrical pedestals.

48. (Withdrawn-Currently Amended) The method of claim 41, further comprising:

implanting ~~diffusing~~ a dopant around the plurality of sidewalls.

49. (Withdrawn-Currently Amended) The method of claim 48, wherein,

the plurality of sidewalls provide an etch stop and a ~~diffusion~~ barrier.

50. (Withdrawn-Currently Amended) The method of claim 49, wherein,

the plurality of sidewalls protect the first material under the plurality of sidewalls from being etched during the vertical etching of the first material located around the plurality of sidewalls and the plurality of sidewalls protect the first material under the plurality of sidewalls from receiving the dopant during the diffusing of the dopant around the plurality of sidewalls.

51. (Withdrawn-Currently Amended) The method of claim 48, wherein,

the dopant is ~~diffused~~ implanted into the substrate around the plurality of sidewalls.

52. (Withdrawn-Currently Amended) The method of claim 48, wherein,

the dopant is ~~diffused~~ implanted into the first material around the plurality of sidewalls.

53-72. (Cancelled)

73. (New) The method of claim 6, wherein

the plurality of sidewalls provide an etch stop and a diffusion barrier.

74. (New) The method of claim 73, wherein

the plurality of sidewalls protect the first material under the plurality of sidewalls from receiving a dopant during the diffusing of the dopant into the first material or the second material.

75. (New) The method of claim 73, wherein

the plurality of sidewalls protect the second material under the plurality of sidewalls from receiving a dopant during the diffusing of the dopant into the first material and the second material.

76. (New) The method of claim 73, wherein,
the plurality of sidewalls protect the first material and the second material under the plurality of sidewalls from receiving a dopant during the diffusing of the dopant into the first material or the second material.

77. (New) The method of claim 7, wherein
the plurality of sidewalls provide an etch stop and a diffusion barrier.

78. (New) The method of claim 77, wherein
the plurality of sidewalls protect the first material under the plurality of sidewalls from receiving a dopant during the diffusing of the dopant into the first material or the second material.

79. (New) The method of claim 77, wherein
the plurality of sidewalls protect the second material under the plurality of sidewalls from receiving a dopant during the diffusing of the dopant into the first material and the second material.

80. (New) The method of claim 77, wherein,
the plurality of sidewalls protect the first material and the second material under the plurality of sidewalls from receiving a dopant during the diffusing of the dopant into the first material or the second material.